An Extract of a Letter of Dr. *J. Wallis*, to M. *Hevelius*, from *Oxford*, *Decemb.* 31. 1673. gratulatory for his *Organographia* ; and particularly concerning *Divisions by Diagonals*, lately inserted in Mr. *Hook*'s Animadversions on the first part of the *Machina Cœlestis* of the Honourable *Joh. Hevelius*; but so faultily there printed, that it was thought fit, at the Author's desire, in his Letter to the Publisher, of *Januar.* 4. 167¾. to be here done more correctedly.

Duplici *saltem nomine, (Clarissime Celeberriméq; Vir,) gratias Tibi referendas habeo ; meo scilicet, & totius Academiæ ; propter duo dono data* Organographiæ *tuæ nuper editæ Exemplaria, Clarissimi* Oldenburgii *curâ tradita. Quorum alterum, mihi destinatum, exosculatus ; alterum Insignissimo* Vice-Cancellario *tradidi, in* Bodleianâ *Bibliothecâ (cum reliquis studiorum tuorum monumentis) reponendum. Qui suo propterea atq; Academiæ nomine grates rependi voluit : Mihiq; vices suas hac in re permisit.*
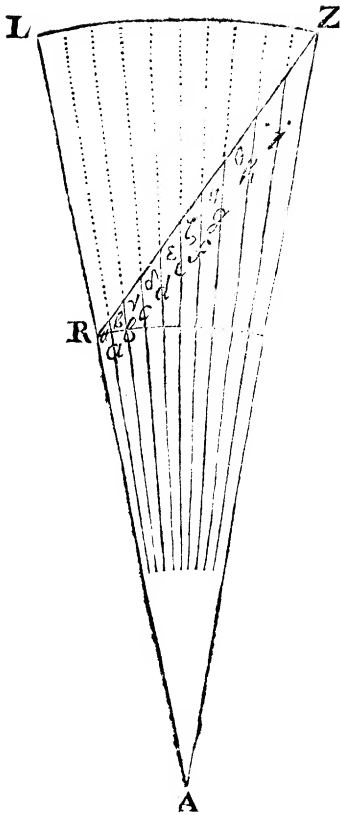
Sed & est cur, communi omnium Literatorum nomine, rebus præsertim Cœlicis addictorum, reddam gratias ; tum ob immensos in tanto apparatu sumptus erogatos, tam pretiosam conquirendo Supellectilem Astronomicam, graphicè hic descriptam ; tum ob indefessos labores, insomnes noctes diésq; occupatissimos, Cœlestibus acquirendis Observationibus impensos, quarum vim ingentem,Thesaurum supra Aurum & Margaritas pretiosum, Erudito Orbi jam ante dederis, plura daturus indies. Verùm non est ut sperem, me verbis æquare posse tua merita ; qui ex privato penu sumptus planè Regios erogâsti ; onúsq; suscepisti non infeliciter, Herculeis humeris (ne Atlanteis dicam) formidandum.

Operis partem maximam jam evolvi ; miratus inibi tantæ moles Instrumentorum ingeniosum regimen ; & subtilissimam Divisionum administrationem ; cum pari diligentiâ conjunctam in Regulis & Dioptris solicitè curandis : Et quidem si hoc deesset, reliquus in cassum cederet labor ; quippe, exiguus & vix evitabilis in Regulis aut Dioptris error, totum Instrumentum vitiaret, omnésq; inficeret Observationes.

Sed singulis immorari non licet. Unum tamen est quod attingam breviter ; Nempe, Divisiones per lineas Diagonales, circulos in Limbo concentricos intersecantes. Hanc Dividendi methodum, jamdiu receptam, ipse retines ; & quidem meritò ; Circulósq; hos concentricos, æqualibus intervallis disjunctos habes. Quod quamvis in exiguorum, aut etiam mediocrium, Instrumentorum Limbis latioribus, aliquid erroris possit inducere ; in Tuis tamen tantæ amplitudinis, Instrumentis, cum limbis exiguæ latitudinis, (quod & tu rectè mones,) nihil quicquam erit discriminis quod in sensus incurrere possit.

Hac tamen occasione libet hic subjicere quod eâ de re jam olim (circa Annum 1650, *aut* 1651,) *meditatus sum ; atq; apud Adversaria mea jam reperio. Nempe ; siquis vellet minoris Inst. umenti Limbum latiorem lineis Diagonalibus sic dividere ; quibus intervallis oporteat concentricos illos Circulos disponere, ut Angulos invicem æquales designarent illæ circulorum cum transversali intersectione ; calculo Trigonometrico determinare.*

Divisio

Divisio Arcûs in Limbo Quadrantis (aliûsve ejusmodi Instrumenti) per Circulos Concentricos, & Rectam Diagonalem.

Sit Latitudo Limbi (RL=) L. *Radius circuli intimi (AR=)* R; *extimi (AZ=AL=)* L+R=Z; *continentes Angulum (RAZ=)* A; *dividendum in partes quotlibet æquales (quarum numerus* n,) *Rectis* a, b, c, *&c. (quarum longitudo quæritur,) facientibus, ad RZ diagonalem, Angulos* α, β, γ, *&c. Adeóque* RAa=$\frac{1}{n}$A, RAb=$\frac{2}{n}$A, RAc=$\frac{3}{n}$A, *&c. Sitque* ARZ=O, *& AZR=V.*

Datis ergo Cruribus R, Z, *cum Angulo contento* A, *(adeóque reliquorum summâ* O+V, *inveniuntur reliqui,* (O *obtusus,* V *acutus :) Nam.*

$$Z+R.\ Z-R :: tang;\ \frac{o+v}{2}.\ tang;\ \frac{2o}{2}.$$

Et $\frac{o+v}{2} + \frac{o-v}{2}$ =O.

Deinde; Cognitis Angulis O, *&* $\frac{1}{n}$A, *(adeóque reliquo* α, *(cum interjecto Latere* R; *habetur Latus* a.   *Nempe,*

$$Sin;\ \alpha.\quad R\quad ::\quad Sin;O.\qquad a.$$

Et, pari modo, ex cognitis $\begin{cases} O, \frac{2}{n}A, \\ O, \frac{3}{n}A, \\ O, \frac{4}{n}A, \\ \&c. \end{cases}$ *habentur* $\begin{cases} a. \\ b. \\ c. \\ d. \&c. \end{cases}$

Praxis.

Sit R=1. L=0, 2. Z=1, 2. A=10'. *Ergo* O + V=179°, 50'

Et $\frac{o+v}{2}$=89°, 55'.   *Tum*

Ut Z+R=2, 2. *ad* Z—R=0, 2 ::

Sit tang; $\frac{o+v}{2}$=687,5488693. *ad* 62,5044427=*tang;* $\frac{o-v}{2}$. *cui respondet Angulus* 89°, 5', 0', 17''', *proximè. Ergo* $\frac{o+v}{2}+\frac{o-v}{2}$=O=179°,0',0'',17''', *fere, Cujus Sinus* 0, 0174511 : *nempe idem cum sinu* 0°,59',59'',43'''.

Deinde; secandus sit Angulus A, *in* 10 *partes, quorum quælibet* i. *Quæruntur igitur,* a, b, c, d, e, f, g, h, i.   *Nempe,*

	1,00000=R 1694
Sin; α (0,58,59,43,)0,0171603.R=1 :: Sin;O=0,0174511.1,01694=a.	1754
Sin; β (0,57,59,43,)0,0168694.R=1 :: Sin;O=0,0174511.1,03448=b.	1816
Sin; γ (0,56,59,43,)0,0165780.R=1 :: Sin;O=0,0174511.1,05264=c.	1880
Sin; δ (0,55,59,43,)0,0162877.	1,07144=e. 1947
Sin; ε (0,54,59,43,)0,0159969.	1,09091=e. 2019
Sin; ζ (0,53,59,43,)0,0157060.	1,11110=f. 2096
Sin; η (0,52,59,43,)0,0154152.	1,13206=g. 2177
Sin; θ (0,51,59,43,)0,0151243.	1,15383=h. 2264
Sin; ι (0,50,59,43,)0,0148335.	1,17647=i. 2353
	1,20000=Z.

Praxis altera.

Sit R$=$1. L$=$0,1. Z$=$1,1. A$=$10′. *Ergo* O+V$=$179°.50′.$\frac{..}{2}=$89°.55 *cujus Tangens* 687,5488693. *Et, ut* 2, 1. *ad* 0, 1 : : *sic* 687,5488693. *ad* 32,7404223½ $=tang$; gr. 88, 15′, 1″, 57‴½. $=tang$; $\frac{..}{2}$. *Ergo* $\frac{o+v}{2}+\frac{..}{2}=O=$gr; 178, 10′, 1″, 57‴½. *Cujus Complementum ad Semicirculum*, gr. 1,49′, 58″, 2‴½. *Cujus Sinus* 0,0319827. *Ergo.*

		1,00000.$=$R.		
Sin; α $=$10,48′,58″,2½‴ $=$316920)319827(1,00918$=$ι.	918	16
Sin; β $=$1,47,58,2½ $=$314013)319827(1,01852$=$b.	934	17
Sin; γ $=$1,46,58,2½ $=$311103)319827(1,02803$=$c.	951	19
Sin; δ $=$1,45,58,2½ $=$308198)319827(1,03773$=$d.	970	19
Sin; ε $=$1,44,58,2½ $=$305290)319827(1,04762$=$e.	989	18
	302343)	(1,05769$=$f.	1007	20
	299475)	(1,06796$=$g.	1027	20
	296567)	(1,07843$=$h.	1047	21
	293660)	(1,08911$=$i.	1068	21
	290752)	(1,10000$=$k.	1089	
		$=$z.		

Hactenus Adversaria nostra. Ubi duos casus expendimus: Nempe, cùm Latitudo Limbi ponitur pars Quinta, & pars Decima, brevioris Radii; & Angulus dividendus, 10 *minuta prima: Tantá fere* ἀϰϱίϐϵια *quantum feret vulgaris Canon Trigonometricus. Et quidem ultima Unitas in ambiguo est; nunc justo major, nunc justo minor. Radium autem (ut ego soleo) facio* 1; *non, ut plerumque fit,* 10000000; *quò omnes Multiplicationes & Divisiones per Radium faciendæ præcidantur. Adeóque Sinus habeo pro partibus Decimalibus; quibus itaque, cum opus est, Ciphras præmitto, quo de Unius Integri loco conflet.*

Simili processu utendum erit, mutatis mutandis, si Latitudo Limbi sumatur in aliá quávis proportione ad Radii longitudinem.

Sed commodius erit (ad vitandam molestiam toties quærendi partem proportionalem) ut sumatur angulus O *commodæ magnitudinis (justis minutis primis determinandæ, absq; annexis secundis tertiisve;) atq; ita quæratur Radii maximi* Z *longitudo, eodem modo quo reliquorum* a, b, c, &c. *Putà, si, in Praxi posteriore, sumpto ut priùs* R$=$1, & *Angulo,* A$=$10′, *sumatur Angulus* O, *(non qui illic prodit* 178°,10′,1″,57‴½ *sed potiùs)* 178°, 10′; *cujus complementum* 1°, 50′; *hujusq; sinus in ipso Canone habetur* 0,0319922; & *reliquorum item,* α, β, γ, δ, &c. *Sinus similiter ibidem habebuntur; ut uná tantum Divisione opus sit pro singulis exhibendis; ipsáque Radii* Z *longitudo, non quidem præcisè ut priùs* 1, 1; *sed huic proxima (quæ itaque sumenda erit)* 1,09996. *Nempe,*

		1,00000.$=$R.		
Sin; α $=$1,49,$=$317015)319922(1,00917,$=$a.	917	17
Sin; β $=$1,48,$=$314108,319922(1,01851,$=$b.	934	18
Sin; γ $=$1,47,$=$311200,319922(1,02803,$=$c.	952	17
&c.	308293,319922(1,03772,$=$d.	969	19
	305385	(1,04760,$=$e.	988	19
	302478	(1,05767,$=$f.	1007	20
	299570	(1,06794,$=$g	1027	20
	296662	(1,07841,$=$h.	1047	20
	293745	(1,08908,$=$i	1067	21
	290847	(1,09996,$=$k.	1088	
		$=$z.		

Similiter

Similiter omnino res succedet, si, sumptis Radiis R, L, *cum Angulo* A, *quæramus* V, *& Radios intermedios*; *aut, sumpto Radio* L, *cum Angulis* A, V, *quærantur* R, *& Radii intermedii.*

Verùm, si Limbi Latitudo sit Radii non nisi pars Trigesima, Quadragesima, aut adhuc minor; *atque Angulus dividendus, non quidem* 10 *minuta prima, sed totidem secunda, seu minor adhuc: subtilior res est quàm ut vulgaris Canon Trigonometricus hic adhibeatur, & quæ omnem sensum fugit; ipsique Circuli concentrici distantiis æqualibus, quantum sensu possumus distinguere, invicem disjuncti: quippe unius Pollicis pars millesima, nedum decies aut centies millesima, minor est discrepantia quàm ut sensu percipi possit.*

Sed nimius sum in re levi. Felicem itaque jam ineuntem Annum comprecatus, longâ sequentium serie continuandum, Valere jubeo.

An Account of some Books.

I. *Some Physico-Theological Considerations about the* Possibility *of the* Resurrection ; *by the Honourable* Robert Boyle, *Esq*; *Fellow of the* R. Society. *London,* 167⅘. *in* 8ᵛᵒ.

THE Noble Author's design in this Discourse being to shew, that the *Philosophical* Difficulties, urged against the *Possibility* of the RESURRECTION, are nothing so insuperable, as they are by some pretended, and by others granted, to be; and having handled this Subject in such a manner, as to make it appear, that *found Philosphy* may furnish us with good Weapons for the defence of our Faith, and that *Corpuscularian* Principles may not only be admitted *without* Epicurean Errors, but be employed *against* them: For these reasons, it was thought it would not be altogether besides the purpose of these Tracts, to give some account of this valuable Essay: Wherein 'tis made out by good Philosophical Observations and Experiments, 1. That a Humane Body is not so confin'd to a determinate bulk, but that the same Soul, being united to a portion of duly organiz'd Matter, is acknowledg'd to constitute the same Man, notwithstanding the vast Differences of bigness, which are at several times between the portions of Matter whereto the Human Soul is united. 2. That a considerable part of the Humane Body consists of Bones, which are bodies of a very determinate nature, and not apt to be destroy'd by the operation of Earth or Fire. 3. That of the less stable, and especially the fluid, parts of a Humane Body, there is a far greater expence made by insensible Transpiration, than even Philosophers would imagine. 4. That the small particles of a resolv'd Body may retain their own nature under various alterations and disguises; of which 'tis possible they may be stript afterwards. 5. That without making a Humane Body cease to be the same, it may be repaired and augmented by the adaptation of congruously disposed Matter to that which pre-existed in it. Which things being so, considering Men do not see, why it should be
impossible